

TEMCO Engineering *MAGIC II*

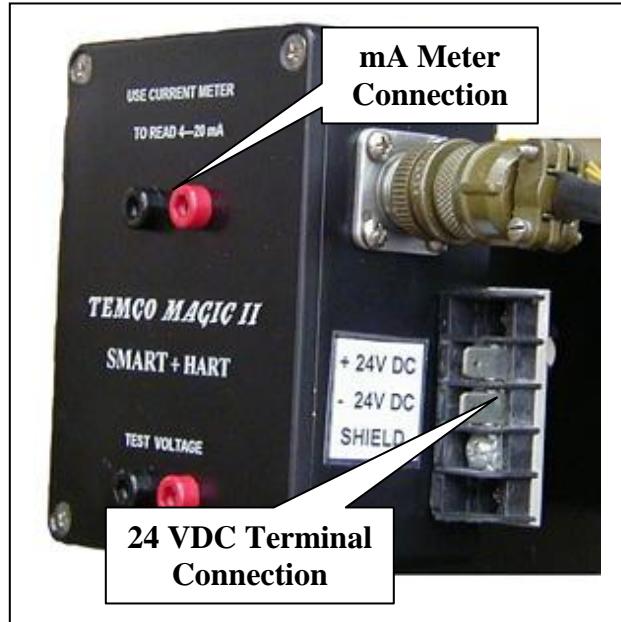
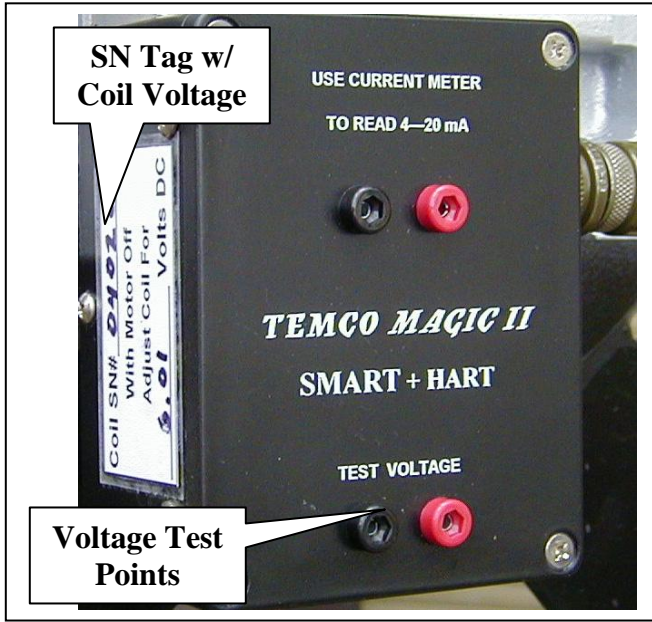
INSTALLATION AND CALIBRATION PROCEDURE

INSTALLATION

- Leave all shipping braces in. Bolt down with 1/2-13 x 1 3/4 long screws. Then start up as follows:
 1. Install clean sensor and new ceramic-coated shaft.
 2. Connect motor power and check rotation.
Clockwise - Looking from the top of the *MAGIC II*. ↻
 3. **REMOVE** vent **screw** in oil filled dampener.
 4. Connect 24-35VDC power. Power (+) to *Magic II* (+), the load resistor in the (-) leg.
 5. Connect digital voltmeter to front panel test points. **With motor off**, adjust **Coil** to DC voltage marked on S/N tag Magic box.
 6. Use **HART** Communicator to set the Upper Range Value (URV) and Lower Range Value (LRV) to match control rooms settings.
 7. Use **HART** to set recommended Curve Number for the application's furnish.
 8. Switch **HART** to read Process Variable.
 9. Move torque arm, DC voltage should swing between 6.0 and about 7.0 volts and Consistency should follow DC voltage swing.
 10. Remove volt meter & Hart Communicator.

FIRST ZERO ADJUSTMENT

1. Put Consistency Loop in Automatic Control.
2. Obtain a Lab Sample. Record the *MAGIC's* signal at the time the sample is taken.
3. Adjust Coil so the *MAGIC's* signal agrees with Lab Sample



CURVE SELECTION

Furnish	MAGIC II Curves
Unbleached Stock	10
OCC and Bleached	7
TMP and Newsprint	6

OTHER ZERO ADJUSTMENTS

- Make a Zero Adjustment when a **series of lab results** shows a consistent error in the same direction with system in automatic.
- Consistency error **greater** than 0.5% adjust Thermacoil.
- Consistency error **less** than 0.5% shift LRV/URV with the Hart.

MAGIC is reading high, ADD the error to the LRV & URV.

MAGIC is reading low, SUBTRACT the error from the LRV & URV.

LRV and URV Change EXAMPLE

MAGIC = 3.5 % Con.; Labs Av. = 3.7 % Con.; Error = -0.2%
MAGIC is reading low, so subtract error from LRV and URV
LRV = 2 % - Adjust to 1.8% **URV** = 5 % - Adjust to 4.8%
 Output at the Control Room will go up .2% to a 3.7% Con. output.

- ❖ After the First Zero Adjustment, output adjustments should be one half the error shown between the labs and the meter.

CURVE ADJUSTMENTS

- Make a Curve Adjustment when a **series of lab results** shows an increasing or decreasing error. The curve number is stored in the Hart communicator as a multiplier.

Change curve/multiplier one number in the direction of error.

- If, **MAGIC** is reading low, lower the multiplier by one.
- If, **MAGIC** is reading high, raise the multiplier by one.

Multiplier Change EXAMPLE

MAGIC = 3.5 % Con.; Labs Av. = 3.8 % Con.; Error = -0.3%

MAGIC is reading low, so the Multiplier Number should be reduced

If **Multiplier Number** is set at 8 – Adjust to 7

The output will go up approximately .3 %, to a 3.8 % Con. output.

TROUBLE SHOOTING TIPS

Constant error between MAGIC and labs	Check coil voltage setting * – if okay refer to Output Adjustments to change zero
Varying error with changes in consistency	Refer to Output Adjustments to change sensitivity with the Curve Number

<p>MAGIC output does not change</p> <p>* Voltage can vary +/- .05 VDC.</p>	<ul style="list-style-type: none"> ▪ Verify that breather plug on damper has been removed ▪ Verify that shipping brace has been removed ▪ Examine area around torque arm and motor for objects obstructing free movement ▪ Disconnect loop power for a few seconds to reset micro. Check power supply for a min of 18 VDC @ 20mA output ▪ Verify that the Box and Coil are working by pushing the torque arm to simulate the full range of output.
---	---

TROUBLE SHOOTING PROCEDURE

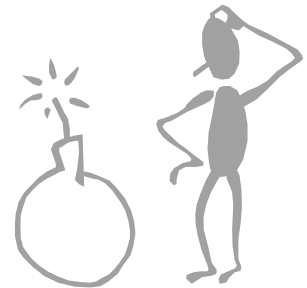
1. Transmitter Serial Number	
2. Examine unit to insure it is free to move and is not obstructed by DRIED stock.	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Has the damper's vent screw and other shipping hardware been removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. What is the supply voltage at terminals on side of enclosure? Minimum of 18vdc @ 20mA. Push torque arm to full right position to simulate 20mA output.	<input type="text"/> VDC @ 20mA
5. Check Coil Voltage with <u>MOTOR OFF</u> .	<input type="text"/> VDC
6. Does Coil Voltage go <u>UP</u> when torque arm is pushed to the right and <u>DOWN</u> when pushed to the left?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Does Consistency Output follow the coil voltage changes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Disconnect ThermaCoil from electronics enclosure. Does Coil Voltage equal approximately 10vdc?	<input type="checkbox"/> Yes <input type="checkbox"/> No



It is not necessary to remove the gearbox plug to check the oil level.

Check the Motor temperature by touching the Torque arm. If the arm is very hot to the touch, check the motor current for unbalanced phases.

Hot Motors will eventually cause gearbox seal failure.



Independent Consistency Experts since 1985



TEMCO Engineering Inc.

1400 Northbrook Pkwy NW, Suite 340
Suwanee, GA 30024

Telephone 678-376-1520 Fax 678-376-1553

Visit us on the web at www.temcoeng.com or call toll free 800-898-3626